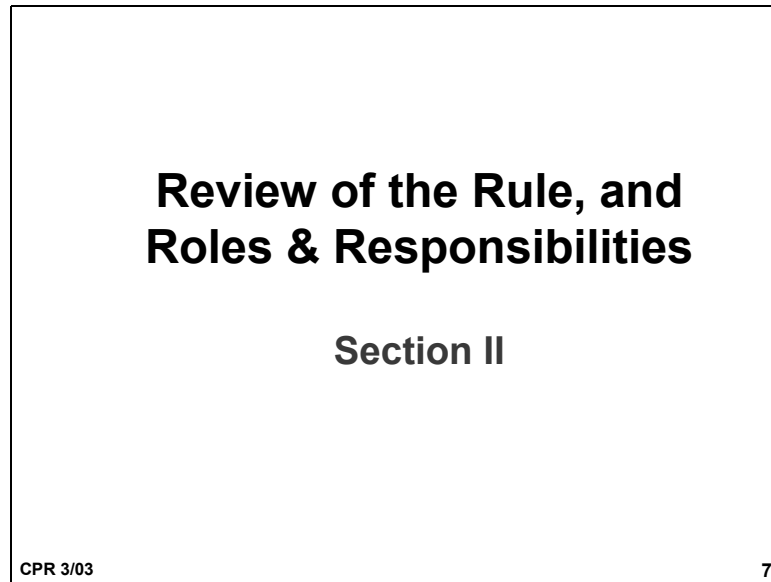
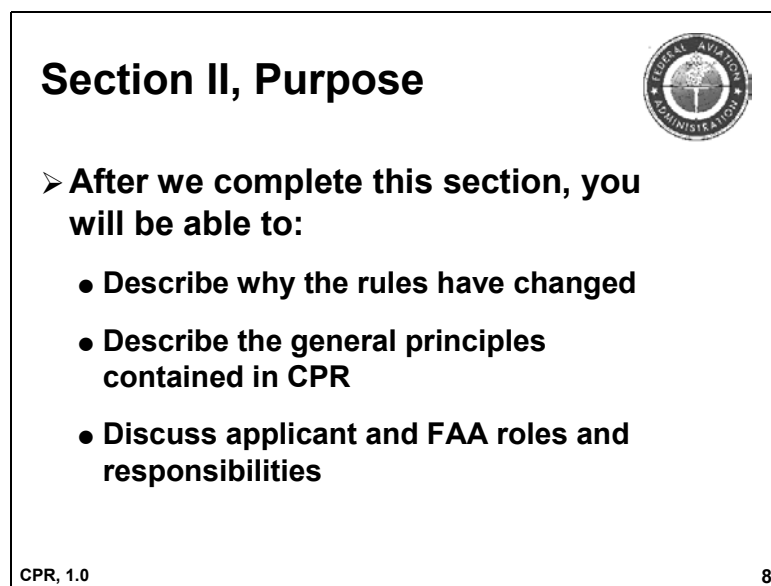


## **II. REVIEW OF THE RULE, AND ROLES AND RESPONSIBILITIES**



### **A. Overview**

- This course is new material and may differ in significant ways from what you've seen in the past.



## Section II, Outline



- Identify challenges in implementing CPR
- Provide background and philosophy of CPR
- Review 21.101
- Introduce concept of product-level change
- Address roles and responsibilities
- Examine role of Type Validation Procedures
- Identify effective date for CPR

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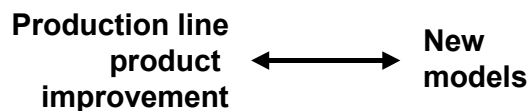
9

## B. Challenges in Implementing CPR

### General Background



- CPR fundamentally changes how FAA establishes the certification basis for a changed product
- CPR applies to wide range of changes



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10

## **General Background, cont.**



### **➤ However . . .**

- **Impact of CPR limited in terms of number of changes affected**
- **Existing certification basis will continue to be appropriate in most cases**

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11

## **Challenges**



- **Apply equitably across all applicants and methods of approval**
- **Meet intent of rule without creating unnecessary burden for negligible safety benefit**
- **Keep focus on significant changes without undue burden on FAA and industry**
- **Strive to implement CPR internationally in accordance with agreed-upon principles**

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12

## Resources

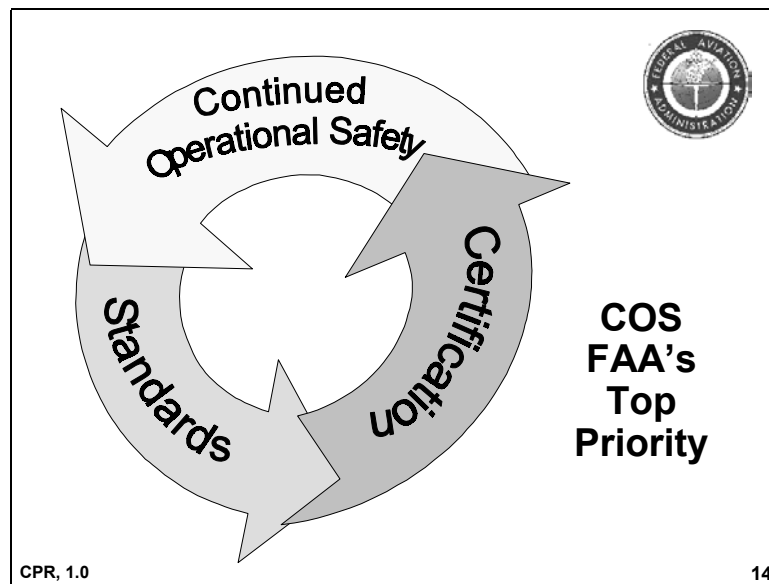


- **AC 21.101-1, Change 1**
  - Appendix 1 tables classify significant/not significant changes by product line
- **Order 8110.CPR**
  - Defines how existing delegation systems will facilitate implementing CPR
- **Designated focal points**
  - Appendix A of Participant Guide
- **Continuous Improvement Team (CIT)**

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13

## C. Introduction of the Revised CPR



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14

## Objective Risk Management

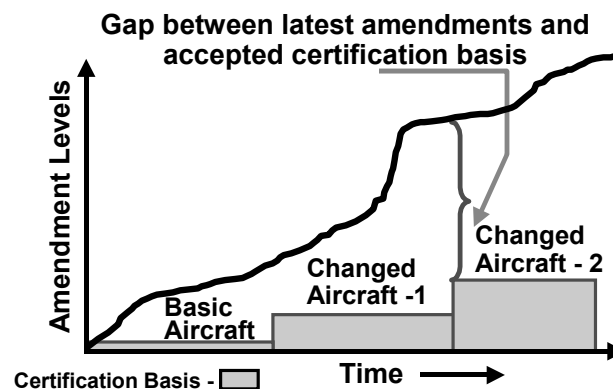


- Focus safety work that provides greatest safety benefit
- CPR allows FAA employees to focus certification time on critical few changes while lower-level changes done in more streamlined fashion
- Frees up critical resources to focus on COS

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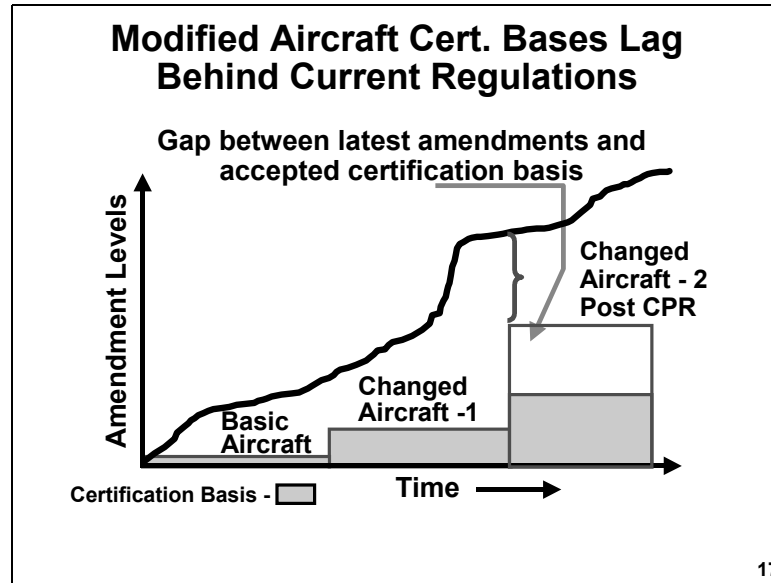
15

## Modified Aircraft Cert. Bases Lag Behind Current Regulations



16

- This slide is notional and not meant to represent a specific aircraft example.
- Most new regulations address new hazards and, therefore, increase safety.



- The objective of the new rule is to reduce the gap between the product's certification basis and the current regulations.

**Intent of New Rule**



- Enhance safety by applying latest airworthiness standards for certification of **significant** changes to products, to greatest extent practical
  - Safe products can be made safer through application of later regulations
  - Unsafe conditions addressed through ADs and retro-active rule making

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18

- We will introduce new concepts that will help you determine whether or not a change is **significant**. The primary concept we will be discussing is that of **product level**.
- We are talking specifically about products redesigned as essentially “new products” through a series of changes that

will have a 20+ year life span. These redesigned products should incorporate the latest regulations so as to achieve a level of safety comparable to that of newly-designed products.

### **Intent of New Rule, cont.**



- **21.101 applies to all major and minor changes**
- **Minor changes and Field Approvals *not significant*, so certification basis remains at regulations in existing TC**
  - **Minor changes approved under 21.95**
  - **AFS Order 8300.10, ch 16, Airworthiness Inspector Handbook - guidance on when major alteration rises to STC level**

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19

- With the exception of one important group of excepted aircraft, the changed product rule establishes the certification basis beginning with the application of the latest regulations for **SIGNIFICANT** changes to the overall product. We refer to this as a “top-down” approach. We will **discuss the excepted products in detail later** in this presentation.

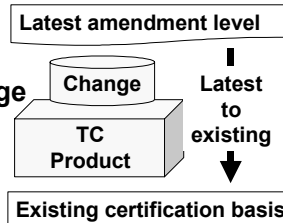
## Top-Down Approach



➤ **Begin with the latest regulations**

➤ **Apply exceptions**

- Change not significant
- Area not affected by change
- Compliance will not contribute materially to safety
- Compliance is impractical

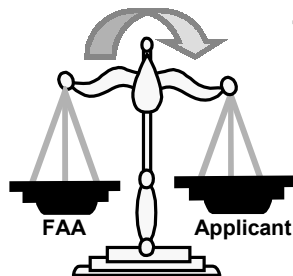


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20

- The latest regulations are applied to all the areas affected by the *significant* change.

## Shift in Responsibility



**The Applicant must now**

- Use an FAA-approved system to determine when change is significant or not significant
- Apply latest regulations for all major changes that are significant at product level
- Propose exceptions

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21

- In general, the **burden of justifying** a change in certification basis **has shifted from the FAA to the applicant**, unless the **applicant** can demonstrate that certain exceptions exist. The exceptions permit the application of earlier requirements.



## **D.    Review of 21.101**

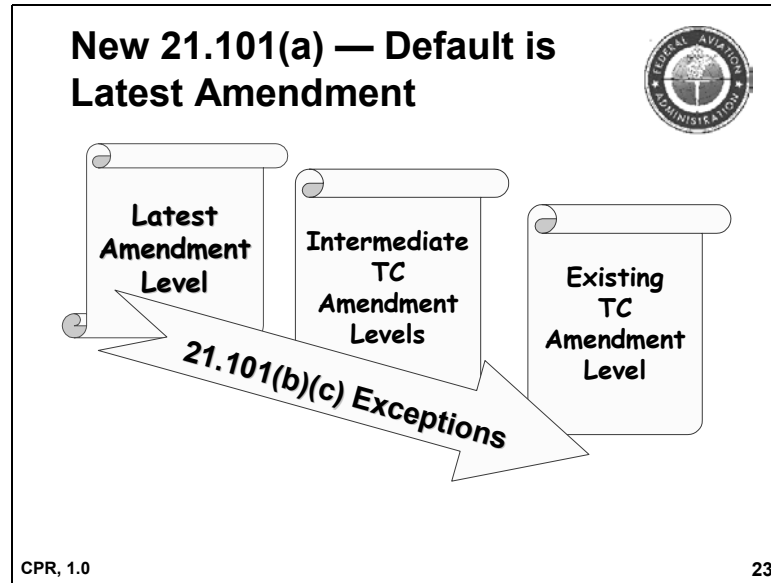
### **Review of 21.101**



- **There are 6 paragraphs to this rule**
- **Focus will be on special provisions of 21.101(b)**
- **21.101 in Appendix D of your Guide**

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- 21.101 establishes the certification basis, it does not excuse the applicant from demonstrating compliance. The applicant must always demonstrate compliance if they make a change. It's just a question of to which rule compliance is being demonstrated.



- **21.101(a)** requires a change to a type certificated product to comply with the latest **airworthiness** requirements in effect on the date of application unless the change meets the criteria for one of the exceptions identified in 21.101(b) and (c).
  - This rule change does not affect the requirements defined in parts 34 and 36. Procedures used to establish the **environmental** requirements for changed products are established in the environmental regulations

## New 21.101(b)



- To comply with amendment levels prior to latest level, applicant may use 4 exceptions
  - Change is not “significant,” or
  - Area not affected by the change, or
  - Compliance with latest airworthiness requirements would not contribute materially to level of safety, or
  - Compliance would be impractical

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24

- The amendment level chosen cannot predate either the existing certification basis or anything required by the retroactive sections, 23.2, 25.2, 27.2, or 29.2.
  - We’ll discuss implementation details about each of these exceptions **LATER** in this presentation. Right now we’re just providing an **OVERVIEW**.

## New 21.101(c) — Excepted Products



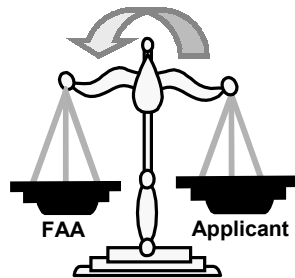
- CPR does apply to these products
- Excepted products are:
  - Aircraft, other than rotorcraft,  $\leq 6,000$  lb
  - Non-turbine rotorcraft  $\leq 3,000$  lb
- Applicant may show compliance with existing certification basis unless Administrator finds change is significant in an area

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25

- **21.101 does apply** to these aircraft.
  - The exception applies at the aircraft level only. Design changes to engines and propellers installed on these excepted aircraft are assessed as separate products using paragraphs 21.101(a) and (b).

## FAA has Burden to Identify *Significant* Changes to Excepted Products




If Administrator finds change is significant in an area, Administrator may designate compliance with a later amendment to the regulations

**AC 21.101-1**

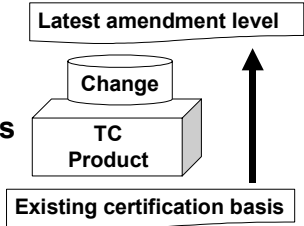
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26

**FAA Identifies Applicable Regulations  
Bottom-Up Approach**




- Used for significant changes to excepted products
- Begin with regulations referenced in TC
- Review later amendments
- Identify appropriate amendment level



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**Significant Changes to Excepted Products**



- Applicant may elect to apply exceptions
  - Area not affected by the change, or
  - Compliance with later requirements would not contribute materially to level of safety, or
  - Compliance would be impractical
- Burden on applicant to demonstrate

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## **New 21.101(d) — Special Conditions**



- **Used for novel or unusual design features for which no appropriate standards exist**
- **Apply to both significant and not significant changes**
- **Issued with level of safety equivalent to latest regulations when change significant**
- **Should be consistent with agreed-upon certification basis for changed product**

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29

## **New 21.101(e) — Effectivity Period of Application**



**Transport Category  
Aircraft - 5 years**

**Other aeronautical products - 3 years**

***Effective period applies to issuance of,  
or amendment to, both TCs and STCs,  
based on date of formal application***

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30

### **New 21.101(e), cont.**



- **If change not certified within time limit, applicant may:**
  - **File for a new application, or**
  - **File for an extension of original application**
- **Process for obtaining extensions is one used today for type certificates**

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31

### **New 21.101(f) — Other Category Aircraft**



- **Applies to aircraft certificated under:**
  - **Special Class - 21.17**
  - **Primary Category - 21.24**
  - **Restricted Category - 21.25**
  - **Surplus Military - 21.27**
  - **Limited Category - CAR 9**

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32

- There is more information on this paragraph at the end of the *Significant* section. Right now we're just giving you the highlights of this paragraph.

### **New 21.101(f) — Other Category Aircraft, cont.**



- **Certification basis for changed product consists of *applicable* regulations in effect on date of application for change**
- **Applicable regulations are parts 23, 25, 27, 29, 31, 33, and 35**
- **Applicant may elect to propose compliance using provisions of 21.101(b)**

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33

- For *significant* changes, the certification basis will include airworthiness requirements that the Administrator finds to be appropriate for the type certification of the aircraft consistent with the referenced FAR section.

### **New 21.101(f) — Other Category Aircraft, cont.**



- **Products in 21.101(f) meeting weight of 21.101(c), treated in (f) NOT (c)**
  - **IF aircraft, other than rotorcraft,  $\leq$  6,000 lb, or**
  - **Non-turbine rotorcraft  $\leq$  3,000 lb**
  - **AND in 21.101(f)**
  - **THEN, burden on applicant to show *not significant* or any other exception**

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34



### **New 21.101(f) — Other Category Aircraft, cont.**



- **Consider aircraft's intended use when establishing aircraft's level of safety**
- **Use parts 33 and 35 for guidance on engines or propellers certified as part of aircraft type design**
- **CPR Order provides additional guidance for each of the Other Category Aircraft**

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35

## **E. Introduction of Product-Level Change Concept**

### **Introduction to Product-Level Change Concept**



- **Section 21.101 applies to all major changes; shift in responsibility from FAA to applicant, in most cases**
- **Developed streamlined approach to assess whether change is *significant***
  - **Reduce burden of documentation**
  - **Support standardization**

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36

## Product-Level Change (PLC)



- Establishes framework used in determining if change is *significant* or *not significant*
  - Assessment considers change and the effect on *overall product* (aircraft, engine, propeller)

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37

## PLC, cont.



- PLCs are individual changes or combination of changes that make product distinct from other models of the product
  - Normally recorded as amended TC, STC, or amended STC


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38

- *Product-level changes* distinctions include changes to a product's range, payload, or speed.
- A model change is not a prerequisite for a product-level change.

## F. Roles and Responsibilities

### Applicant's Responsibility




- Identify and evaluate all changes (including previous relevant design changes)
- Determine if change *significant* at product level
- Apply latest regulations or propose exception
- Justify proposed exceptions
- Propose a certification basis

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- The exceptions are: *not significant, not affected area, does not contribute materially to the level of safety, and impractical.*

### FAA Responsibility



- Provide guidance to applicant on application of rule (CPR focal point)
- Use Certification Project Notification (CPN) to identify significant changes
  - Additional block to identify *significant change* contrasted with *significant project*
  - A *significant change* will always be a *significant project*, but the reverse is not necessarily true

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- AIR-100 also has a focal point for CPR.

## **FAA Responsibility, cont.**



- **Use delegation system to streamline implementation**
  - **ACOs need to work with applicants to establish effective delegation system**
- **For excepted products, determine if change is *significant***
  - **Burden on FAA, as default *not significant***
  - **Applicant applies any other exceptions**

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41

## **FAA Responsibility, cont.**



- **Use Appendix 1 of CPR AC for pre-determinations of *not significant***
- **For *significant* changes, approve/disapprove exceptions as proposed by applicant**
  - **Review data submitted; make a finding**
- **Determine certification basis**

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42

## **FAA Responsibility, cont.**



- Directorate makes final determination of certification basis
- Issue paper process one way to document, resolve issues between applicant and FAA
- Standards Staff and CIT also resources
- Agreements such as the Partnership for Safety Plan (PSP) and Project-Specific Certification Plan (PSCP) useful

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43

## **FAA Responsibility, cont.**



- Use the G-1 issue paper to resolve issues
  - Document *significant* changes
  - Identify *not significant* changes where existing certification basis is inadequate
  - Document application of special conditions per 21.101(d)

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44

## **FAA Responsibility, cont.**



- **FAA responsibility to develop issue paper**
- **When disagreement between applicant and Directorate regarding exceptions allowed by 21.101(b), AIR-100 part of coordination process and makes final decision for applying exceptions**

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45

## **FAA Responsibility, cont.**



- **Upon completion of project, document certification basis in amended type certificate data sheet (TCDS) or on STC (per CPR Order)**
  - **Now more important because of requirement to assess all previous relevant design changes against most recent update of certification basis**

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46

## **Applicants Without a Delegation System**



- **Applicant may classify change as *not significant* using criteria in 21.101(b) and Appendix 1 of AC**
- **FAA may make determination based on applicant's proposed classification**

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47

## **Applicants Without a Delegation System, cont.**



- **If FAA disagrees with the applicant's classification for *significant***
  - **Use the issue paper process to resolve differences**
  - **Coordinate decisions with AIR-100 to ensure consistent, standard application of the rule**

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48

### **Delegation: Not Significant Determination**



- **FAA may authorize applicant to make determination of *not significant* without further FAA finding**
- **Need written agreement between FAA and applicant**

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49

### **Delegation, cont.**



- **Written agreement**
  - **Defines and describes system applicant will use to classify change as *not significant***
  - **Describes how the FAA will oversee applicant's design control system**
    - ✓ **Monitor applicant's project notification and design control system**

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50

- The ACO establishes the level of responsibility with regard to delegation and oversight.



## **Delegation, cont.**



### **➤ Acceptable system *must* :**

- Include procedures to classify change as *not significant*, and
- Cover changes not adequately addressed in existing certification basis

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51

## **Delegation, cont.**



### **➤ Written agreement may take several forms:**

- Stand-alone document,
- Part of PSP or PSCP,
- Organization Procedures Manual,
- Applicant's quality manual,
- Existing memorandum of agreement (MOA)

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52

## **Delegation, cont.**



- **Existing delegation system will handle typical production line/product improvement changes**
- **Applicant may have existing design control system that satisfies this requirement**
  - **Includes DAS and DOA organizations**

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53

## **G. Type Validation Procedures**

### **Type Validation Procedures**



- **Check appropriate bilateral agreement**
  - **Often recognize date of application to Certifying Authority (CA) as effective date of application to the Validating Authority (VA) for STCs and amended TCs**

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54

**Type Validation Procedures, cont.**



- **Relationships between CA, VA, and applicant unchanged**
- **Rule and guidance material harmonized with JAA and TCCA**
  - **Applicant works with CA to establish certification basis and informs VA of decision**

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55

- The Continuous Improvement Team will include JAA and TCCA membership to ensure continuous coordination and communication as we gain experience in implementing 21.101.

## **H. When Does CPR Take Effect?**

**When Does CPR Take Effect?**



- **June 10, 2003 for all products**
- **JAA and Transport Canada plan to implement CPR on same date**

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56

## **I. Summary**

- **Now I'm going to ask you some questions about this section.** This will help us and you find out if there are areas of confusion.

### **Summary Questions**



- **To whom can the FAA engineer go to for help with CPR?**
- **Why was CPR established?**

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57

### **Summary Questions, cont.**



- **What is the intent of CPR?**
- **How does the term "Top-Down Approach" apply to CPR?**

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58

### **Summary Questions, cont.**



- **What products do not use the top-down approach for CPR?**
  
- **For the excepted products, who has the responsibility to find the change *significant*?**

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59

### **Summary Questions, cont.**



- **For excepted products, if the change is *significant*, who is responsible for applying the three remaining exceptions?**

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60

## **Section II Summary**



### **➤ Intent of CPR**

- Enhance safety by applying the latest airworthiness standards for certification of *significant* design changes to the greatest extent practical

### **➤ CPR changes process used to establish certification basis in most cases**

- Starting point for *significant* changes is latest regulations

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61

## **Section II Summary**



### **➤ For most products, applicants have burden of proposing use of an exception to provide relief from applying latest regulations to a major change**

### **➤ For excepted products, the FAA must determine that a change is *significant***

- Default is *not significant*
- Starting point is regulations referenced in TC

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62

## **Section II Summary, cont.**



- **Use product-level change concept and delegation system to streamline implementation and mitigate burden for determining if change is *not significant***
- **FAA must use PLC and develop tailored delegation approaches with manufacturers to achieve optimal safety benefit**
- **Designated focal points and CIT will foster standardization and identify barriers**

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63